ORIGINAL ARTICLES

PHYSICIANS' ACTIVITIES IN THE FIELD OF MEDICINE*

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ONE outstanding achievement of the twentieth century, as far as medicine is concerned, is the change in attitude toward venereal diseases on the part of the laity and the medical profession. The campaign to stamp out these diseases was instituted only two years ago by Federal and State authorities, and has made great advances in this field. The subject of venereal disease has been brought out into the light, imparting to millions of people the real significance of these infections. The cloak of secrecy and moral stigma which has surrounded this problem from time immemorial prevented the dissemination of true knowledge to the public. It is now granted by all that venereal disease exists: that it can be prevented, and that, by proper treatment, it can be eradicated.

Much credit must be given to Surgeon-General Parran, who fostered the program of venereal disease control. He, with the United States Public Health Service, and the health agencies of the various states, in coöperation with the teachers in medical schools, have acted jointly to acquaint the medical profession and the laity with the most modern methods of the treatment of these diseases.

INCREASING KNOWLEDGE CONCERNING SYPHILIS

Before outlining the program for venereal disease control now being undertaken in California, I should like to recall briefly the tremendous changes in our knowledge of syphilis which have taken place since the late nineties, when I was a medical student. It is true that much was known of this disease from a clinical standpoint, but much confusion existed so far as many truly syphilitic manifestations were concerned. Paresis, for instance, was thought to be syphilitic; but not until the discovery of the Treponema pallidum, years later, were we certain that it was syphilitic. Treatment had not advanced for hundreds of years and we still had only mercury and iodides to combat the disease.

The modern era of syphilis began in 1905 when Schaudinn and Hoffman discovered the Treponema pallidum, and announced it as the cause of syphilis. The Wassermann test for the serologic diagnosis of syphilis followed in 1906. Then Ehrlich synthesized salvarsan in 1910. In the space of five years the etiology of syphilis had been solved, an invaluable diagnostic test had been introduced, and a specific therapeutic agent had been discovered. With this impetus great strides were made in the diagnosis and treatment of the disease.

As a result of these discoveries, a third-year medical student can demonstrate the Treponema pallidum in the secretions of the primary or secondary lesions; whereas, when I was a student we had to wait until secondary symptoms appeared before an accurate diagnosis could be made.

The next five to ten years brought out many facts concerning the proper treatment of the disease. It was soon learned that even with a potent spirocheticide, such as salvarsan, a cure could not be effected quickly, and that it required repeated attacks upon the organisms, over a period of one to three years, before cure could be obtained.

Other great discoveries in the field of syphilis followed: the dark field microscope was invented; and the necessity and value of lumbar puncture were pointed out.

In 1917, Von Juarreg announced that patients insane with general paresis frequently were restored to health and sanity by innoculating them with malarial parasites. The field of fever therapy has been greatly extended, and today we administer artificial fever by means of simple appliances.

Another great advance in the treatment of neurosyphilis was the introduction of tryparsamide in 1917 by Heidelberger of the Rockefeller Foundation. This drug with fever therapy has given a real hope of relief to thousands of unfortunate neurosyphilitics. As a result, our institutions for the insane are no longer filled with bedridden paralytic syphilitics.

Then in 1920, Levaditi introduced bismuth into syphilotherapy. This drug has replaced mercury to a large extent. Bismuth is a much more active spirocheticide, and much less toxic than mercury. It causes little pain when injected. The introduction of bismuth has made anti-syphilitic therapy much more humane than in the days of mercurial stomatitis, nephritis, painful buttocks, and similar therapeutic sequelae.

PROGNOSIS AND EARLY DIAGNOSES

With these discoveries, the prognosis in the treated syphilitic has been entirely changed from the time of my early medical days. Then few syphilitics were cured. Today the patient who starts treatment during the first few days of his infection has a 90 to 95 per cent chance of cure, and somewhat less so if he waits for a few weeks before consulting his physician. If every syphilitic could be treated in the early phase of the disease, or even in the early latent period, the late catastrophies of the disease, such as paresis, tabes, aortitis aneurysm, etc., would become a rarity. Even in the late stages of the disease, much relief is obtained by proper treatment.

PLACE OF SYPHILIS IN PUBLIC HEALTH PROGRAMS

However, it is obvious that it is our duty and aim to diagnose syphilis as early as possible and see that the proper treatment is instituted. That, in a word, is the purpose of our public health program, as it relates to venereal disease.

SUMMARY OF ONE YEAR'S ACTIVITIES IN VENEREAL DISEASE CONTROL

The Bureau of Venereal Diseases was established within the State Department of Public Health February 1, 1937, using funds allocated to the State of California by the United States Public Health Service.

*Address of President Howard Morrow. Read at the first general meeting of the sixty-seventh annual session of the California Medical Association, Hotel Huntington, Pasadena, May 9 to 12, 1938.

The movement was markedly stimulated by the adoption of special legislation and appropriation of State funds at the 1937 session of the State Legislature. This law, known as Chapter 787, Statutes of 1937, became effective August 27, 1937.

In the fifteen months since the formation of the Bureau, the control program has gradually taken form. The present activities and plans may be discussed under five headings:

First. — Information accumulated concerning the extent and nature of the problem.

Second.—Improvement of diagnostic and treatment facilities in public clinics.

Third.—Improvement of the administration of the program by local health departments.

Fourth.—Improvement in the coöperation and efficiency of physicians in private practice.

Fifth.—Informative programs for the general public.

These may now be considered in more detail.

I.—*Information concerning the extent and nature of the venereal disease problem:*

Preliminary one-day surveys in Fresno, Madera, Stanislaus, and Orange counties have indicated that there are approximately six cases per one thousand of population constantly under treatment for venereal disease in California. This represents a case load of about 40,000 patients for the entire State. Approximately 25 per cent of these patients are being treated in public clinics, 75 per cent by about 5,000 private physicians.

An unknown number of patients, perhaps an equal number, who should be receiving treatment are not under any medical care. We estimate that free clinic facilities are needed for approximately two or three patients per 1,000 of population. In a county of 100,000 population free medical care will need to be provided for from 200 to 300 patients. This number may reach four or five cases per 1,000 in the more urban centers.

Information has been accumulated as to the amount of money being expended upon control activities, and as to the cost of the diseases to the State. Even with additional funds now available, only 5 cents per capita per year is available for control measures, yet 10 cents per capita per year is being expended for the one item of care of our syphilitic insane in our State hospitals.

Statistics are being compiled on reporting, on clinic activities, on publicity methods, etc., all designed to guide us in the further development of the program. Further surveys of incidence and prevalence are being planned.

We are accumulating information with reference to the rôle of prostitution in the transmission of these diseases. A survey of most of the rural districts of the State has already been completed.

Wassermann surveys are being conducted, notably among S. R. A. applicants. Approximately 10 per cent of applicants to the S. R. A. camps at Stockton and at Pacoima have been found to have positive blood Wassermanns.

II.—*Diagnostic and treatment facilities:*

Practically all of the seventy-five clinics throughout the State are now offering free diagnostic services. Adequate treatment is fundamental in the control of venereal diseases. From one-fourth to one-third of all venereal disease patients are being cared for on a no-fee basis. Patients are being referred to private physicians for treatment whenever this is possible.

Reorganization and extension of clinic facilities are under way. Direct aid in the form of personnel, clinic record forms, drugs and consultative service is being offered to established clinics that agree to adopt the standards proposed by the State Department of Public Health. Clinics are required to admit any patient for initial diagnosis and emergency treatment, any patient referred by a private physician for consultation or special tests—such patients to be returned with examination reports to the physicians referring them, and any patient unable to pay a private physician for treatment, regardless of residency. Clinics must meet certain minimum standards of record keeping, laboratory facilities, equipment, personnel; must provide modern treatment, carry on epidemiological work or coöperate with the health department doing this work in the clinic; and carry on educational activities within the clinic.

A specific example of how this works may be given. Last October a medical officer from the Bureau was assigned to a clinic being operated by the Sacramento City Health Department. In the succeeding three months the clinic was remodeled, admission fees abolished, the entrance requirements noted above adopted, record keeping improved, and the general standard of medical care improved. The attendance at the clinic has increased by more than three times (624 visits in February, 1937, as compared with 2,020 visits in February, 1938), yet no patients have come from private physicians except as directly referred to the clinics. The same plan was recently adopted by the Fresno County Hospital Clinic. Attendance at this clinic has doubled in two months. The clinic at San Bernardino is being transferred from the County Hospital to the Health Department, and will be opened on the new basis in the near future. Almost all the seventy-five clinics now operating throughout the State have indicated a desire to coöperate. Some further clinics are being established; two clinics are now being operated at the S. R. A. camps in Stockton and at Camp Waybur. There are approximately 350 men in these camps under treatment. Of 3,600 men examined at Camp Stockton thus far, 380 positive Wassermanns were found—a prevalence of 10.6 per cent.

It is hoped that eventually a chain of clinics will be available so that the vast migratory labor population can be adequately controlled. The treatment of venereal diseases is being included as part of the medical care being provided for the migratory workers.

A comparison of clinic activities during the past twenty years is of interest. Detailed reports of the twenty-four hospitals and clinics coöperating in 1917–1918 are not available. However, records for 1919–1920 indicate that at that time there were sixteen clinics reporting activities; and using the figures for that fiscal year, July, 1919 to June,

1920, we have the following comparison for syphilis patients:

Year	*1919–20*	*1927*	*1937*
Number of clinics	16	14	75
Number of new cases of syphilis	2,870	3,538	9,099
Number of treatments for syphilis	13,865	119,557	299,084

A comparison of clinic activities for 1936 and 1937 is shown in the following table:

Year		*1936*	*1937*
Number of clinics reporting		52	75
New cases	Syphilis	6,064	9,099
	Gonorrhea	5,172	6,365
Number of treatments	Syphilis	206,185	299,084
	Gonorrhea	70,805	143,344
Total clinic visits		290,435	484,130

A comparison of cases of syphilis and gonorrhea reported, 1933 to 1937 inclusive, and the first three months of 1938, is as follows:

	Syphilis	*Gonorrhea*
1933	10,737	7,817
1934	11,820	10,459
1935	11,957	11,634
1936	11,725	12,118
1937	17,288	17,051
Three months of 1938	5,752	4,061
	69,279	63,140

III.—*Improvement of administration in local health departments:*

Personnel is being provided, chiefly public health nurses, laboratory equipment and supplies, drugs, pamphlets, and consultative service. The most notable contribution will be in the increased epidemiological work made possible by the added personnel. This activity is already functioning in several health departments. Ten public health nurses have thus far been assigned to local health departments. The Fresno City Health Department has been converted from part-time to full-time, a laboratory provided, and diagnostic clinics set up. Laboratory equipment, particularly microscopic and darkfield, has been provided for a number of local health departments.

IV.—*Assistance to private physicians:*

1. An attempt is being made to keep physicians informed as to what is going on. An addressograph list has been prepared in our central bureau office containing the names of all medical practitioners in the State. Periodically, the 12,000 practitioners are being circularized in outlining the objectives of the program and their part in attaining these objectives. Reporting almost doubled after the first letter was sent out, in which the new reporting system was announced. A bulletin outlining the modern treatment of syphilis was enclosed in the first letter. A companion bulletin on the treatment of gonorrhea is being prepared. Pamphlets for distribution to their patients are also being provided. Three circular letters have thus far been mailed to all physicians.

2. In an effort to develop one more point of contact with the physician, a special epidemiological card has been prepared. Upon receipt of each case report from a physician in private practice, the local health department forwards to the physician this card, together with such pamphlets as are indicated for transmission to the patient. This serves automatically to keep the physician supplied with pamphlets.

Upon these cards the physician reports lapses from treatment, sources and contacts.

3. As an additional service to physicians, free public health nursing is being provided to assist them in the epidemiological work. Nurses are being assigned to local health departments for this work. This service is already functioning smoothly in some districts.

4. In order to assist physicians in the care of marginal cases, free drugs are being provided by the State.

5. Plans are going forward to provide for the payment of physicians for the care of indigent patients in rural districts where there are no available clinics.

6. Educational programs for physicians are being developed. A series of conferences for county medical society groups will be carried on during June of this year.

7. Special training courses are being offered to young physicians, consisting of a three months' medical school course, plus nine months of field work in venereal disease clinics. Ten or more young clinicians will receive this training during the fiscal year 1938-1939.

V.—*Informative program for the general public:*

A number of industrial concerns have been contacted and provided with lecturers, motion pictures, pamphlets, and posters. Active participation of lay organizations, such as the American Social Hygiene Association, junior chambers of commerce, Federated Women's Clubs, etc., has been encouraged. We have released to the newspapers a series of articles pertaining to syphilis. We are planning radio broadcasts, and the issuing of posters. A series of seven pamphlets has been issued and thus far over one-half million pamphlets distributed. We are trying to tell the public the story in a straightforward, scientific manner. An active local educational program has been developed in Los Angeles County in coöperation with the Los Angeles Junior Chamber of Commerce. Other such projects are being planned throughout the state.

The personnel of the Bureau of Venereal Diseases has been gradually expanding, being on April 15, 1938, as follows:

Chief of the Bureau, Malcolm H. Merrill, M. D.

Medical officers, Donald G. Davy, M. D., Kenneth L. Stout, M. D., and John C. Dement, M. D.

Venereal disease trainees, James Moreland, M. D., and Edward Hirschberg, M. D.

Public Health nurses, 10; stenographers, 3; laboratory technicians, 5; laboratory helpers, 3; mailing clerk, 1.

Further additions in physician and nursing personnel will be necessary. In addition, a limited number of investigators will be added to the staff.

Throughout the year temporary personnel in the way of stenographers, investigators, publicity director and mailing clerks has been used. A WPA project, allowing for ten additional clerks, stenographers and laboratory helpers, has been granted to facilitate research work for the year 1938.

To summarize, the outline of activities in venereal disease control as just given indicates that real progress in overcoming these diseases is being made.

"REPORT ON FACTUAL DATA" OF THE CALIFORNIA MEDICAL ECONOMIC SURVEY

In my next topic, I shall comment briefly upon an enterprise to which, since the year 1934, much thought was given by members of the House of Delegates in three annual and one special session, namely, the California Medical Economic Survey, which came to a conclusion in November, 1937, when the "Report on Factual Data" was brought off the press, and copies sent to the members of the Association.

Because the Association expended almost fifty thousand dollars on that project, it is proper that it should be briefly discussed.

The California Medical Association, through action on May 3, 1934, by its House of Delegates at the annual session held in Riverside, committed itself to a survey of matters having relationship to the securing of factual data concerning the power of the people of California to purchase professional medical services, and particularly to pay the costs necessarily incident to illness.

The expressed purpose was to permit this Association to assist in meeting *current* inadequacies, should any be found to exist.

A Committee of Five was authorized and appointed, which in turn secured the services of a faculty member on the economics staff of the University of California at Los Angeles, Paul A. Dodd, Ph.D., to supervise the collection and compilation of data. Subsequently, the Committee of Five was informed it would be possible to secure federal funds to supplement money advanced by this Association and help pay the wages of field representatives (citizens who, in the depression years 1934-1935, were in need of employment) to distribute and collect questionnaire blanks to citizens, provided that a constituted state agency would make request for such allocation of moneys, be responsible for proper expenditures thereof, and assume responsibility for interpretations and conclusions contained in such survey. The California Medical Association's Committee of Five petitioned the California State Board of Public Health to request the Federal Government to make such allocation through its authority; and the State Board being interested in all data having to do with the incidence and prevention of disease, as well as the early restoration to useful citizenship of all persons incapacitated through illness and injury, approved this committee's request. It expressed its willingness to act as official sponsor of such survey for the purposes enumerated in the Association's resolution, and petitioned the proper department of the United States Government, the FERA (Federal Emergency Relief Administration), to be so designated, when such sponsorship was approved and federal moneys were made available.

The foreword of the Report on Factual Data of the California Medical Economic Survey, on pages III to XLVI of that volume which was printed at the expense of the California Medical Association, gives detailed information concerning subsequent steps. The final report of Professor Dodd, on the subject matter of the Survey, was submitted by him on January 29, 1937, with a transmittal letter containing the statement, "This material is complete within itself, and is prepared for the printer." However, owing to conditions subsequently submitted by this employee, as well as the elimination of irrelevant matters contained in this report, necessitating further delays, it was not possible to bring the report to the printed page until October, 1937.

After its printing, a copy of the "Report on Factual Data" of the California Medical Economic Survey was sent to every member of the California Medical Association, and additional copies given to the federal authorities and other parties. Six thousand copies were distributed in this manner without cost to the recipients, and additional copies were placed on sale at the price of $2.00 per copy. The California Medical Association thereby fulfilled its obligation as supporting sponsor, to give publicity to the relevant data collected and compiled.

Discretion as to what should be contained in the California Medical Economic Survey was at all times vested in the State Board of Public Health, according to an official opinion of the Attorney-General of this state, who ruled that, notwithstanding nonpublic contributions, the complete report was the property of the State of California.

That this view was correct and the project recognized as successfully terminated, was evidenced by a letter in which the federal regional director quoted the Washington authorities as looking upon the California Survey as a "completed project," in the following language:

> This reply, we believe, will officially close the correspondence on this FERA [Federal Emergency Relief Act] undertaking in so far as the WPA [Federal Works Progress Administration] is concerned.

One other reference may be alluded to, namely that which in the *Journal of the American Medical Association* of February 26, 1938, on page 117B, gave the comments of the American Medical Association Bureau of Medical Economics on tables and other data compiled by the Director of the Survey, in which attention was called to the "adequacy" of the tables, and the "inadequacy" of the statistical information contained therein.

Immediately prior to and following the publications of the report, some persons composing the so-called editorial staff of the survey made public and private representations that certain irrelevant and redundant matters eliminated from the approved report should have been included therein.

What personal or private influences motivated such representations I am not in a position to state.

Lest there be any misunderstanding concerning the statements contained in the report as submitted and before necessary editing, I feel it only fair to state that it is my understanding that the report, as submitted, did not represent the views of the noted educators who composed the advisory council of the Survey. Indeed, I have information

that the so-called completed report was never submitted to all the persons comprising such council.

It is to be hoped that this unpleasant experience will lead future Houses of Delegates of the California Medical Association to consider carefully not only the attainable end-results in any projected survey, but also the total amount of money necessary to carry through the same. Having spent almost fifty thousand dollars of its reserve funds as its share of the costs of the California Medical Economic Survey, our members may well ask themselves what important facts were garnered by the group of professors in charge to warrant the expenditure of such a large sum of money.

HOSPITALIZATION INSURANCE

During recent years there has been an intense interest in the provision of hospital and medical insurance for the underprivileged, and individual members and various groups within the Society have taken active part in discussions pertaining to the subject.

Hospital insurance is of comparatively recent origin in the United States. The first association to provide nonprofit hospital insurance in California was organized in Sacramento. Upon the enactment of the Hospital Insurance Act of 1935, similar service was organized in the East Bay, later extending over a large part of the San Francisco Bay area. Following the enactment of the 1937 Nonprofit Hospital Act, fifteen hospitals of Southern California organized the Associated Hospital Service of Southern California. Recently, employees of San Francisco City and County have organized themselves into an association that provides them with hospital and medical service whenever they may be taken ill. The payment of monthly dues enables them to secure the services of, and gives them the right to select, their own physician, who is paid according to a definite fee schedule. The experiment is being watched with keen interest. All of these organizations are flourishing, and a steady gain in membership is reported.

Most of these organizations provide members with twenty-one days of hospital service, including general nursing in a ward, use of operating room, x-ray equipment, ordinary drugs and dressings. All of them, with the exception of the San Francisco City and County Association, provide only hospital service, the provision of medical service being apart and distinct from the organization itself.

MEDICAL CARE OF MIGRATORY WORKERS

Within the past few months, the Farm Security Administration has launched a comprehensive plan for the care of the agricultural migratory worker who has not qualified legally as a resident of the state and who is not, therefore, entitled to relief. Through the provision of funds by the United States Public Health Service, the State Department of Public Health is enabled to formulate a program for the hospital and medical relief of such migratory laborers. A corporation under the Farm Security Administration has been organized to provide medical and hospital care. The funds provided for this purpose will be placed in the hands of the corporation, organized under the laws of the State of California, whose board of directors consists of four governmental representatives and three representatives from the California Medical Association. This corporation will devise the essential plans for the provision of adequate medical and hospital care, legal authority for which action is in the Nonprofit Hospital Act.

Under this scheme, each of the county medical societies will be called upon to provide a panel from which the individual patient may select his own physician, who shall receive definite compensation for his services. In this manner, the fundamental principle which guarantees the right of the patient to select his own physician will be maintained. The unique feature of this plan lies in the fact that the medical profession will be called upon to furnish care for the migratory laborers and will be paid for their services. If this plan is successful, the association should extend the program so that the doctor may receive compensation for his services whenever and wherever they may be provided through governmental agencies.

This plan would make unnecessary, as well as inadvisable, the employment of government physicians or contract medicine in any form. The time has arrived when governmental agencies that are called upon to provide medical care should turn over the provision of such service to members of the medical profession. The medical profession, in turn, should use its best efforts in always furnishing high grade medical service, obviating the possibility of extension of contract medicine in any form. By spreading the burden of hospitalization over a large group, cutting down the expense of hospitalization to individuals, and permitting them to continue the right of obtaining their own private physician without dictation or interference by any governmental agency, relief of the highest order will be given to the underprivileged.

The American people, with their inborn independence, always desire to conduct their own businesses in their own way. Americans have always indicated that they desire to select a physician of their own choosing, and no European plan of medical insurance could possibly be satisfactory to our people unless the point of regimentation has already been attained. In such a case, there is no personal choice in anything.

With regard to the individual in the lowest income class, there can be no argument or quibbling over the provision of medical care. It is the unequivocable duty of governmental agencies to give these most underprivileged individuals adequate medical care free of cost, but the physician should not be asked nor expected to carry the financial burden involved. He should always be reimbursed adequately for his services.

IN CONCLUSION

Each of the topics I have discussed has a somewhat intimate relationship to governmental activities, a fact that should not be lost sight of in a consideration of trends in present-day medical practice. The old way of several decades ago, when medical organizations were only of secondary im-

portance in the lives of physicians, has passed. Today, it behooves every member of the medical profession to be fully alert, and take an active interest in organization work; because, only through united effort will it be possible for us to preserve those methods which experience has shown to be necessary implements, in making possible the highest type of medical service for the citizens of our state and nation. I thank you.

TRAUMATIC RUPTURE OF THE SPLEEN*

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DISCUSSION *by Alanson Weeks, M. D., San Francisco; F. Paul O'Hara, M. D., San Diego.*

THIS paper is a review of twenty-one cases of injury to the spleen. Although there are many papers appearing in the literature discussing this relatively uncommon injury, it deserves renewed attention because (1) there are not a few autopsies revealing unrecognized ruptured spleen as the major cause of death, and (2) surgeons not dealing primarily with trauma fail to allot this subject its proper importance. We must constantly keep in mind the possibilities of rupture of the spleen, rupture of the urinary bladder, and rupture of other hollow viscera in every injured person.

In this series there were seventeen males and four females, whose ages averaged twenty-three years. This predominance of younger males is undoubtedly due to the fact that they are most exposed to the types of trauma necessary to cause this injury. Thirteen of these resulted from vehicular accidents, five from penetrating wounds, and three from falls.

The interval between the time of injury and entry into the hospital varied from ten minutes to twenty-four hours, while the period of observation was from fifty minutes to fifty-five hours. These intervals were prolonged in some cases because of (1) the delay by the patient in seeking medical care, (2) the time consumed in an attempt to combat shock, (3) the time required for observation and the difficulty in making the diagnosis in the presence of multiple injuries, and (4) the fact that the ruptured spleen was overlooked because of other injuries.

DIFFICULTIES IN DIAGNOSIS

The difficulties in making a diagnosis may be due to (1) the frequent absence of visible signs of injury to the anterior abdominal wall which leads the patient, and, at times, the doctor, to disregard the early mild symptoms, believing any trauma sufficient to rupture the spleen would cause visible evidence of injury to the superficial tissues; (2) the characteristic recession of symptoms, as mentioned below; (3) the presence of shock resulting from head injuries, or alcoholism interfering with the usual reaction of the patient to injury; and (4) the presence of more obvious symptoms resulting from other injury.

PAIN

Regional pain is the most important clinical manifestation of rupture of the spleen. It is often misleading in character. Pain may be of a dull, aching type, or it may be sharp and lancinating. It may be localized to left upper quadrant early, and soon generalized throughout the abdomen. Generalization occurs as the blood spreads in the peritoneal cavity. The pain is usually more intense in the left upper quadrant or left flank. Characteristically, the pain continues during active bleeding. This recurrence of pain, due to recurring hemorrhage, is partly due to the rhythmic contractions of the spleen, which gives the following cycle: A clot forms, the patient's condition improves, blood pressure rises, contraction of the viscus dislodges the thrombus, bleeding recurs, and pain and shock once more become evident. The pain is not severe, as a rule. It does not reach the intensity of that in rupture of the stomach or duodenum. It is usually relieved by small doses of opiates. It is similar to that present in the lower abdomen following a rupture of an ectopic pregnancy.

At times, radiation of pain to the shoulders and left back occurs because of irritation of the diaphragmatic peritoneum, and attention may be erroneously attracted to the chest.

REËXAMINATIONS IMPORTANT

The injury often is not suspected in the patient who is most helped by prompt surgical intervention. Hourly examination and rechecking of the findings and laboratory work in all traumatized individuals are essential. Often by the time the resident examines the patient who has been reported in shock, the bleeding has temporarily ceased and general condition has improved, thus misleading the examiner.

In all patients where there is a history of trauma to the abdomen, the flanks or the lower chest, even if there be no visible injury and no early complaint of pain, we must be spleen-minded and not overlook the slowly developing shock, the slight distention, the mild abdominal pain and slight discomfort, which are the early signs of rupture of the spleen.

Tenderness, direct and rebound, and guarding coincide with the distribution of the pain, but they may not be remarkable. Freed blood in the peritoneal cavity is seldom demonstrable, even when a considerable quantity is present, although localized dullness may indicate a confined hemorrhage in the splenic area. This local collection of coagulated blood is sometimes visible on the roentgenogram. Rectal tenderness and a soft, resisting fullness may be present due to blood in the cul-de-sac of Douglass. Temperature, pulse, respiration, and blood pressure usually are indicative to some degree of shock. The temperature is subnormal, the pulse may be elevated to 120 or more per minute. A fact, not well known, is that early in hemorrhage the

* From the San Francisco Emergency Hospital Service, San Francisco Department of Public Health.
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